Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (cancelled)

Claim 2 (Currently Amended): A method for generating a premium for an option, comprising:

providing the average volatility of the asset by employing historical or market data;

providing the volatility of volatility of the asset by employing historical data;

providing the type of distribution for the forward rate based on historical data;

providing a volatility distribution graph based on the selected distribution type, the volatility and the volatility of volatility, the graph having volatility as the x-axis and probability as the y-axis;

dividing the volatility distribution graph into a plurality of vertical slices, each of said slices corresponding to a volatility, whereby the integration of the graph over the volatility range corresponding to each slice provides a probability for the corresponding volatility;

determining an option premium for each vertical slice by employing a volatility premium process;

weighing each premium from said determining of premium step by the probability associated with the corresponding volatility as determined from the volatility distribution graph; and

summing all weighed premiums associated with the volatilities to provide a premium for the option, wherein the volatility premium process used to determine the stochastic volatility premium ~~is the q-model~~ incorporates a trader-selected q to calculate the value of a call option on rate r with forward value $\bar{r}$, strike k, expiration time t, and annualized volatility σ ~~a~~ and is given by the following formula:

$$BSQ(\bar{r}, c, \sigma, t) = \bar{r}^{\frac{1}{q}} . \Phi(d_1) + \bar{r}(1 - \tfrac{1}{q} - \tilde{k}) . \Phi(d_2)$$

Where Φ is the normal cumulative inverse function and

$$\tilde{k} = k / \bar{r}$$

$$\tilde{x} = -\tfrac{1}{q} \ln[(\tilde{k} - 1)q + 1] / (\sigma\sqrt{t})$$

$$d_1 = \tilde{x} + \tfrac{1}{2} q \sigma \sqrt{t}$$

$$d_2 = \tilde{x} - \tfrac{1}{2} q \sigma \sqrt{t}$$

Claim 3 (Currently Amended): A method for generating a premium for an option, comprising:

providing the average volatility of the asset by employing historical or market data;

providing the volatility of volatility of the asset by employing historical data;

providing the type of distribution for the forward rate based on historical data;

providing a volatility distribution graph based on the selected distribution type, the volatility and the volatility of volatility, the graph having volatility as the x-axis and probability as the y-axis;

dividing the volatility distribution graph into a plurality of vertical slices, each of said slices corresponding to a volatility, whereby the integration of the graph over the volatility range corresponding to each slice provides a probability for the corresponding volatility;

determining an option premium for each vertical slice by employing a volatility premium calculation equation ~~process~~;

weighing each premium from said determining of premium step by the probability associated with the corresponding volatility as determined from the volatility distribution graph;

summing all weighed premiums associated with the volatilities to provide a premium for the option; and

performing an inverse Black procedure to determine the conventional market implied volatility for a strike rate that is different from the forward rate.

Claim 4 (Currently Amended): A method for generating a premium for an option, said option associated with a volatility, a volatility of volatility, and a distribution type, said method comprising:

providing a volatility distribution based on said volatility, said volatility of volatility, and said distribution type;

dividing the volatility distribution into a plurality of portions, each said portion corresponding to a volatility, each said portion being associated with a probability;

determining an option premium for each volatility portion by employing a volatility premium process;

weighing each option premium by the probability associated with said volatility portion; and

summing all weighed premiums associated with said volatility portions to provide a premium for the option, wherein the volatility premium process used to determine said option premium for each said volatility portion uses a selectable q parameter ~~q-model~~, and wherein the value of a call option on rate r with forward value $\bar{r}$, strike k, expiration time t, and annualized volatility σ is given by the following formula:

$$BSQ(\bar{r},c,\sigma,t) = \bar{r}^{\frac{1}{q}}.\Phi(d_1) + \bar{r}(1-\tfrac{1}{q}-\tilde{k}).\Phi(d_2)$$

Where Φ is the normal cumulative inverse function and

$$\tilde{k} = k/\bar{r}$$

$$\tilde{x} = -\tfrac{1}{q}\ln[(\tilde{k}-1)q+1]/(\sigma\sqrt{t})$$

$$d_1 = \tilde{x} + \tfrac{1}{2}q\sigma\sqrt{t}$$

$$d_2 = \tilde{x} - \tfrac{1}{2}q\sigma\sqrt{t}$$

Claim 5 (Previously Presented): The method of Claim 4, further comprising performing an inverse Black procedure to determine the conventional market implied volatility for a strike rate that is different from the forward rate.

Claim 6 (Currently Amended): A computer system for generating a premium for an option, said option associated with a volatility, a volatility of volatility and a distribution type, said system comprising computer processor programmed to:

receive a volatility distribution based on said volatility, said volatility of volatility, and said distribution type;

divide the volatility distribution into a plurality of portions, each said portion corresponding to a volatility, each said portion being associated with a probability;

determine an option premium for each volatility portion by employing a volatility premium calculation equation ~~process~~;

weigh each option premium by the probability associated with said volatility portion; and

sum all weighed premiums associated with said volatility portions to provide a premium for the option, wherein the processor is further programmed to use a selectable q parameter ~~q model~~ in determining said option premium for each said portion.

Claim 7 (Previously Presented): The system of Claim 6, wherein the processor is programmed to calculate the value of a call option on rate r with forward value $\bar{r}$, strike k, expiration time t, and annualized volatility σ by the following formula:

$$BSQ(\bar{r},c,\sigma,t) = \bar{r}\,\tfrac{1}{q}.\Phi(d_1) + \bar{r}(1-\tfrac{1}{q}-\tilde{k}).\Phi(d_2)$$

Where Φ is the normal cumulative inverse function and

$$\tilde{k} = k/\bar{r}$$

$$\tilde{x} = -\tfrac{1}{q}\ln[(\tilde{k}-1)q+1]/(\sigma\sqrt{t})$$

$$d_1 = \tilde{x} + \tfrac{1}{2}q\sigma\sqrt{t}$$

$$d_2 = \tilde{x} - \tfrac{1}{2}q\sigma\sqrt{t}$$

Claim 8 (Previously Presented): The system of Claim 7, wherein the processor is further programmed to perform an inverse Black procedure to determine the conventional market implied volatility for a strike rate that is different from the forward rate.